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09/695,499	10/23/2000	Joshua Coates	SCAL.P0001	1575

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EXAMINER

HWANG, JOON H

ART UNIT	PAPER NUMBER
2172	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No. 09/695,499	Applicant(s) COATES ET AL.
Examiner Joon H. Hwang	Art Unit 2172

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 27 February 2004.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 22-40 is/are pending in the application.
- 4a) Of the above claim(s) 1-3, 5-14 and 16-21 is/are ~~withdrawn from consideration~~ *Cancelled*.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 22-40 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____ .
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____ .
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . 6) Other: _____ .

DETAILED ACTION

1. The applicants canceled claims 1-3, 5-14, and 16-21 and added new claims 22-39 in the amendment received on 2/27/04.

The pending claims are 22-39.

Claim Objections

2. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claim 24 (second claim 24) has been renumbered 25.

Misnumbered claim 25 has been renumbered 26 and its dependency is changed from claim 24 to claim 25.

Misnumbered claim 26 has been renumbered 27 and its dependency is changed from claim 24 to claim 25.

Misnumbered claim 27 has been renumbered 28 and its dependency is changed from claim 26 to claim 27.

Misnumbered claim 28 has been renumbered 29.

Misnumbered claim 29 has been renumbered 30 and its dependency is changed from claim 1 to claim 22.

Misnumbered claim 30 has been renumbered 31.

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Misnumbered claim 31 has been renumbered 32 and its dependency is changed from claim 30 to claim 31.

Misnumbered claim 32 has been renumbered 33 and its dependency is changed from claim 30 to claim 31.

Misnumbered claim 33 has been renumbered 34 and its dependency is changed from claim 30 to claim 31.

Misnumbered claim 34 has been renumbered 35 and its dependency is changed from claim 33 to claim 34.

Misnumbered claim 35 has been renumbered 36 and its dependency is changed from claim 33 to claim 34.

Misnumbered claim 36 has been renumbered 37 and its dependency is changed from claim 33 to claim 34.

Misnumbered claim 37 has been renumbered 38 and its dependency is changed from claim 30 to claim 31.

Misnumbered claim 38 has been renumbered 39 and its dependency is changed from claim 30 to claim 31.

Misnumbered claim 39 has been renumbered 40.

3. The pending claims are now 22-40.

Response to Arguments

4. Applicant's arguments with respect to claims 22-40 have been considered but are moot in view of the new ground(s) of rejection.

The applicants newly presented the limitations of claims 22, 31, and 40. These limitations are addressed in the following rejection.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 22-25, 27, 29-30, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Popelka et al. (U.S. Patent No. 6,081,883) in view of Bergsten (U.S. Patent No. 6,360,306).

With respect to claim 22, Popelka discloses a file processor (a virtual file system, VFS) for storing file information, wherein a client of a network storage system accesses the file processor (VFS) over a network to manage a plurality files of the network storage system by conducting file system operations (abstract, fig. 1, fig. 6, lines 42-67 in col. 2, lines 1-7 in col. 3, lines 35-45 in col. 5, lines 25-31 in col. 8, lines 62-67 in col. 11, and lines 1-16 in col. 12). Popelka discloses presenting a single system image to an application or a client (lines 31-39 in col. 3 and lines 25-31 in col. 8) concerning the VFS for a single file system. Popelka discloses file names and file operations, such as writing and reading (lines 35-45 in col. 5 and line 62 in col. 11 thru line 17 in col. 12), wherein a file name in writing or reading operation teaches a unique file identifier in one way concerning receiving a unique file identifier (a storage resource locator (SRL)) from

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the VFS. Furthermore, in a typical file system, metadata about files, such as file names and file locations, are shown to the user for allowing the user to perform file operations to specific files. Popelka discloses storage processors and storages (a storage center) for storing a plurality files for the single file system, wherein the client of the network storage system accesses the file processors and storages (the storage center) to download files over a public access network (fig. 1 and line 67 in col. 8 thru line 7 in col. 9) by transmitting requests. Popelka teaches a plurality of storage processors for receiving requests, including a unique file identifier, such as a file name, teaching SRL, to access the storages (the storage center) for storing files for a single file system and for servicing file retrieving requests (fig. 1, lines 35-58 in col. 5, line 62 in col. 11 thru line 17 in col. 12, lines 60-67 in col. 15, and lines 1-13 in col. 16). Popelka does not explicitly disclose the storage centers located in geographically disparate locations from each other and the client. However, Bergsten discloses a plurality of mass storage devices (MSD), which may be located in geographically disparate locations from each other and the client in a distributed storage system (lines 7-25 in col. 4, lines 25-40 in col. 1, and fig. 1) in order to prevent data loss due to natural disaster. Bergsten also, further in detail, discloses a storage controller emulates storages for its local host computer virtually (lines 30-36 in col. 3, lines 15-38 in col. 6, and line 41 in col. 7 thru line 3 in col. 8) concerning a virtual file system for a single file system. Bergsten discloses mapping a single host (virtual) address to a single or multiple physical address(es) (line 16 in col. 9 thru line 22 in col. 11). Bergsten also discloses multiple copies across the multiple storages (abstract, lines 15-36 in col. 3, lines 16-25 in col. 4,

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lines 16-28 in col. 9) to improve data access performance. Therefore, based on Popelka in view of Bergsten, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teachings of Bergsten to the system of Popelka for locating storage centers in geographically disparate locations in order to prevent data loss of storage centers due to natural disaster.

With respect to claim 23, Popelka discloses a network processor (a storage port) for accessing the file processor (VFS) and the storage processors and storages (the storage center, abstract, fig. 1, lines 55-65 in col. 2, lines 59-67 in col. 5, and lines 1-4 in col. 6).

With respect to claim 24, Popelka discloses additional network processors for backup (additional storage ports in the event of a failover condition, fig. 1). Bergsten also teaches utilizing multiple copies of system elements, such as MSD and storage controllers (line 15 in col. 3 thru line 36 in col. 4) in the event of a failover condition.

With respect to claim 25, Popelka discloses a plurality of storage processors (distributed object storage managers, DOSMs), wherein one (selected) storage processor receives a request, including a unique file identifier, to access the storages and storages (storage cluster/intelligent storage nodes) for storing files of the network storage system and for servicing access requests from the storage processors (DOSMs, fig. 1, lines 35-58 in col. 5, line 62 in col. 11 thru line 17 in col. 12, lines 60-67 in col. 15, and lines 1-13 in col. 16).

With respect to claim 27, Popelka discloses a storage processor (DOSM) comprising a cache for write (fig. 1). Popelka discloses a read cache in another

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processor (network processor, fig. 1). Thus, the read cache could be utilized additionally in the storage processor for storing a subset of files stored in storages.

With respect to claim 29, Popelka discloses the claimed subject matter as discussed above except a dynamic failover mechanism explicitly. However, Bergsten discloses the utilization of multiple copies of system elements, such as MSD and storage controllers (line 15 in col. 3 thru line 36 in col. 4, line 65 in col. 5 thru line 2 in col. 6, fig. 1, fig. 22, and fig. 30) in the event of a failover condition in order to prevent a system failure due to natural disaster. Therefore, based on Popelka in view of Bergsten, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teachings of Bergsten to the system of Popelka for a dynamic failover mechanism in order to prevent a system failure due to natural disaster.

With respect to claim 30, Popelka discloses a (content delivery) network (fig. 1 and lines 46-58 in col. 4).

The limitations of claim 40 are rejected in the analysis of claim 22 above, and the claim is rejected on that basis.

7. Claims 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Popelka et al. (U.S. Patent No. 6,081,883) in view of Bergsten (U.S. Patent No. 6,360,306), and further in view of Gall et al. (U.S. Patent No. 6,356,929).

With respect to claim 26, Popelka and Bergsten disclose the claimed subject matter as discussed above. Popelka further discloses combined file storage processors

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(FSPs) combining the functions of the file processor and the storage processor, wherein the file processor contains metadata cache for file information (lines 25-32 in col. 11, fig. 1, and fig. 6). Popelka and Bergsten do not explicitly disclose a multicast protocol. However, Gall discloses a multicast protocol for distributing data (abstract, fig. 4, lines 66-67 in col. 5, and lines 1-11 in col. 6) in order to share data between computer systems or processors. Therefore, based on Popelka in view of Bergsten, and further in view of Gall, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teachings of Gall to the system of Popelka for a multicast protocol in order to distribute or share data among processors for data consistency.

8. Claims 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Popelka et al. (U.S. Patent No. 6,081,883) in view of Bergsten (U.S. Patent No. 6,360,306), and further in view of Tzelnic et al. (U.S. Patent No. 5,948,062).

With respect to claim 28, Popelka and Bergsten disclose the claimed subject matter as discussed above. Popelka further discloses LRU maintenance for a cache teaching caching data for files in high demand (lines 14-16 in col. 12). Popelka and Bergsten do not explicitly disclose a load balancing. However, Tzelnic discloses balancing loads among data movers (processors, lines 4-14 and 62-67 in col. 10 and lines 1-5 in col. 11) for parallel processing. Therefore, based on Popelka in view of Bergsten, and further in view of Tzelnic, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teachings of

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Tzelnic to the system of Popelka for a load balancing in order to balance loads among the processors (DOSMs) for parallel processing.

9. Claims 31-39 are essentially the same as claims 22-30 except that it sets forth the claimed invention as a method rather than a system and rejected for the same reasons as applied hereinabove.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joon H. Hwang whose telephone number is 703-305-6469. The examiner can normally be reached on 9:30-6:00(M~F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JOHN E BREENE can be reached on 703-305-9790. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Joon Hwang
4/29/04




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